

REMARKS

Claims 1-18 are pending in the application, and claims 14, 15, and 16 have been withdrawn. In view of the following remarks, reconsideration and allowance of the instant application are respectfully requested.

I. ARGUMENT FOR WITHDRAWAL OF FINALITY OF OFFICE ACTION

The finality of the Office Action should be withdrawn since claim 18 is rejected but no particularized explanation of the rejection is provided. The Examiner indicates that the feature of claim 18 of a ratio of a plurality of luminous intensities is not disclosed in either of Chang or Kobayashi (Office Action; page 4, lines 14-15). The Examiner apparently asserts that Arakawa discloses this feature, but does not provide any citation or discussion of Arakawa relating to this feature. The Examiner is reminded that it is the duty of the Examiner to specifically point out each and every limitation of a claim being rejected as per §1.104(c)(2) of Title 37 of the Code of Federal Regulations and section 707 of the M.P.E.P., which explicitly states that "the particular part relied on must be designated" and "the pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified". Therefore, Applicants are not able to properly respond to the Office Action, and it is therefore respectfully requested that the finality of the rejection be withdrawn.

II. 35 U.S.C. 102(b)

Claims 1, 6, 7, 11, 12, 15, and 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,919,259 to Chang et al. (hereinafter referred to as Chang). Applicants respectfully traverse.

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Initially, the Examiner's reliance on Chang as a reference under 35 U.S.C. § 102(b) is incorrect, since Chang's publication date of April 22, 2004 is not less than one year prior to the filing date of the present application, and in fact follows the filing date of January 29, 2004. Therefore, Applicants respectfully request that this rejection be withdrawn.

However the present invention is nonetheless distinguishable from Chang. Claim 1 relates to a method of manufacturing a semiconductor device that includes, *inter alia*, forming a film on a semiconductor substrate, and performing a dry etching process for removing the film while monitoring a plasma emission at a plurality of wavelengths. In the method of claim 1, the performing the dry etching process includes *determining an endpoint of the dry etching process based on a change of luminous intensity obtained by a correlation of a plurality of luminous intensities of the plasma emission* at the plurality of wavelengths.

The portions of Chang cited in the Office Action apparently discuss a dry etching process. In particular, Chang indicates that "[f]or example, optical emission spectroscopy (OES) may be used as is known in the art to obtain multiple wavelength or single wavelength information on plasma species emission and to *determine an etching endpoint based on changes in plasma species emission signal intensity*" (Chang; col. 5, lines 42-47; emphasis added). However, it does not appear that Chang discloses or suggests "determining an endpoint of said dry etching process based on a change of luminous intensity *obtained by a correlation of a plurality of luminous intensities of the plasma emission* at said plurality of wavelengths" (Claim 1; emphasis added). Chang merely discusses changes in intensity, whereas the method of claim 1 recites that an endpoint is determined based on a correlation of a plurality of intensities.

As discussed in the specification:

Further, while the foregoing examples represent the cases where an endpoint is detected utilizing a total luminous intensity of the two

wavelengths, it is also possible to detect an endpoint based on various *correlations* of a plurality of wavelengths, such as utilizing a wavelength ratio among a plurality of wavelengths (a value obtained by dividing luminous intensity at a wavelength by that of another wavelength), or utilizing a total or a ratio among a plurality of wavelengths granting a greater weight to luminous intensity of a certain wavelength than that of another wavelength, etc.

(Specification; page 31, lines 1-11; emphasis added). Two examples are given in the specification of the use of correlations in determining an endpoint. It is respectfully submitted that Chang does not disclose such a use of a correlation, and therefore for at least this reason, claim 1 is allowable.

Claim 15 includes features similar to those discussed above in regard to claim 1 and is therefore allowable for at least the same reasons as claim 1 is allowable.

Claims 6, 7, and 17 depend from claim 1 and is therefore allowable for at least the same reasons as claim 1 is allowable.

Additionally, the feature of dependent claim 17, which recites that the correlation includes a total of the plurality of luminous intensities, is not disclosed in Chang. Chang makes no reference to a total of a plurality of luminous intensities, and therefore claim 17 is additionally allowable for at least this reason.

Claims 11 and 12 depend from claims 9 and 10 respectively. Since base claims 9 and 10 are rejected based on a combination of references, and since the Examiner admits that Chang does not disclose all of the features of claims 9 and 10 (Office Action; page 4, lines 4-5), it is not understood how claims 11 and 12, which by necessity include all of the features of their base claims 9 and 10, respectively, can be rejected based on Chang alone. Therefore it is respectfully requested that the rejections of claims 11 and 12 be withdrawn.

III. 35 U.S.C. 103(a)

Claims 2-5, 8-10, and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view of U.S. Patent No. 5,668,019 to Kobayashi et al. (hereinafter referred to as Kobayashi), and further in view of U.S. Patent No. 6,703,285 to Arakawa et al. (hereinafter referred to as Arakawa). Applicants respectfully traverse.

A. No Motivation to Combine

There is no motivation to combine the references, and therefore the obviousness rejection should be withdrawn. There is no citation to either reference showing a basis for a motivation nor any reason why one of the references would suggest a combination with any of the other references. Furthermore, the stated motivation to combine, "to facilitate the manufacture of the semiconductor device and improve the speed of the semiconductor structure" (Office Action; page 5, lines 10-11) is merely a bald statement of nebulous benefit, and is not supported in any of the references.

This conclusory reasoning is insufficient to support a claim of obviousness. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either *explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.* (MPEP 2143.01, emphasis added). "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

The Federal Circuit addressed the standard for obviousness and the requirement of motivation in Teleflex, Inc. et al. v. KSR Int'l Co., (119 Fed. Appx. 282; 2005 U.S. App. LEXIS 176). The patent at issue in *Teleflex*, related to an electronic pedal position control and a pedal assembly. In *Teleflex*, the district court granted a motion for summary judgment based on invalidity due to obviousness. The Federal Circuit vacated the decision and remanded to the lower court for further proceedings on the issue of obviousness. The Federal Circuit stated that, in regard to obviousness, "a person of ordinary skill in the art must not only have had some motivation to combine the prior art teachings, *but some motivation to combine the prior art teachings in the particular manner claimed.*" (*Teleflex*, citing *In re Korzab*; emphasis added). The Federal Circuit found that there was no motivation to combine the Asano patent, which disclosed all of the limitations except the electronic control, and the Rixon patent, which disclosed an electronic control and an adjustable pedal assembly. As the court further stated:

[t]he district court correctly noted that the nature of the problem to be solved may, under appropriate circumstances, provide a suggestion or motivation to combine prior art references. However, the *test requires that the nature of the problem to be solved be such that it would have led a person of ordinary skill in the art to combine the prior art teachings in the particular manner claimed.*

(*Teleflex*, citing as background *Rouffer*, 149 F.3d at 1357; emphasis added).

It is respectfully submitted that the present rejection is similar to the rejection discussed in *Teleflex* in that there is no motivation provided in Chang to combine its teaching with either of Kobayashi or Arakawa. As the *Teleflex* court held, there must be *specific teaching* to motivate a person of ordinary skill in the art to combine the prior art teachings *in the particular manner claimed*. Therefore, since there is no motivation to combine the references, the rejection is improper and should be withdrawn.

B. Claim 18 Is Allowable Over The Combination Of References

Additionally, regarding the feature of dependent claim 18, which recites that the correlation includes a ratio of the plurality of luminous intensities that grants a greater weight to the luminous intensity of one of the plurality of wavelengths than that of another of the plurality of wavelengths, is not disclosed or suggested by any of Chang, Kobayashi, or Arakawa. The Examiner admits the neither of Chang nor Kobayashi discloses a ratio of a plurality of luminous intensities (Office Action; page 4, lines 14-15. The Examiner asserts that Arakawa discloses this feature. However, there is no citation or even allegation that Arakawa discloses this feature. It is respectfully submitted that Arakawa does not disclose or suggest the feature of a correlation including a ratio of the plurality of luminous intensities that grants a greater weight to the luminous intensity of one of the plurality of wavelengths than that of another of the plurality of wavelengths. Therefore claim 18 is additionally allowable for at least this reason.

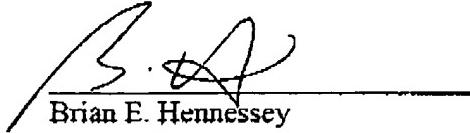
CONCLUSION

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

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Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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